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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/526,385	02/25/2005	Stephen McLaughlin	D4742-00069	3843

8933 7590 04/22/2008

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EXAMINER
HO, HUY C

ART UNIT	PAPER NUMBER
2617	

MAIL DATE	DELIVERY MODE
04/22/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/526,385	MCLAUGHLIN ET AL.	
	Examiner	Art Unit	
	HUY C. HO	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 January 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-10 and 12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-10 and 12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 February 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 01/17/2008 have been fully considered but they are not persuasive.

The argued features, i.e., a method of operating a time division duplex based wireless communications system comprising the steps of establishing, at a base station, a Resource Metric Mapping Function (RMMF); deriving from said RMMF, from both the mean value and standard deviation of the received signal to interference ratio (SIR) for all users, and from estimates of channel load conditions and interference levels, a Resource Metric Region (RMR) showing the number of users experiencing acceptable quality of service, wherein the step of deriving the RMR comprises Kalman prediction of an interference vector comprising a predicted interference value for each user; and deciding, on the basis of the RMR, whether to admit a newly arriving call, read upon Naghian in view of Olofsson and further in view of Dziong as follows.

Naghian discusses admission control method and system, where a set of parameters such as data transmission speed, delays, allowed bit error rate BET, carrier to Interference ratio C/I, SIR, channel load conditions are taken into account for the admission control on a network (see col 1 lines 25-67, col 2 lines 1-67, col 3 lines 1-67), thus, disclosing a method of operating a time division duplex based wireless communications system comprising the steps of establishing, at a base station, a Resource Metric Mapping Function (RMMF); deriving from said RMMF, from both the mean value and standard deviation of the received signal to interference ratio (SIR) for all users, and from estimates of channel load conditions and interference levels, a Resource Metric Region (RMR) showing the number of users experiencing acceptable quality of service. Naghian does not show the use of Kalman method for prediction interference value of each user. Dziong discusses admission control adjustment method and system in a data traffic network, where Kalman filtering techniques are advantageously applied to optimally estimate the SIR mean and variance values (see the abstract, col 2 lines 50-61, col 7 lines 45-67, col 8 lines 1-5), thus, Dziong discloses the step of deriving the RMR comprises Kalman prediction of an interference vector comprising a predicted interference value for each user.

Since both Naghian and Dziong teach admission control method and system in a traffic data network, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Naghian teachings, and have Kalman prediction of an interference vector comprising a predicted interference value for each user taught by Dziong, to improve the admission control method and system discussed by Naghian (see col 1 lines 15-67, col 2 lines 1-67, and col 3 lines 1-32).

As a result, the argued features are written such that they read upon the cited references.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. **Claims 1, 3-5, 10 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Naghian (7,024,203)** in view of **Olofsson et al. (NPL Document, 0-7803-3777-8/97, 1997 IEEE)** and further in view of **Dziong (6,625,155).**

Consider claim 1, A method of operating a time division duplex based wireless communications system comprising:

Naghian discloses:

the steps of establishing, at a base station (**col 1 lines 25-45, col 2 lines 27-36, col 3 lines 15-22, col 13 lines 62-67, col 14 lines 1-10**);

the received signal to interference ratio (SIR) for all users (**col 1 lines 50-67, col 5 lines 5-17, col 7 lines 35-67, col 8 lines 1-67**) and from estimates of channel load conditions (**col 5 lines 9-17, col 10 lines 25-41**) and interference levels (**col 1 lines 50-67, col 5 lines 5-17**) a Resource Metric Region (RMR) showing the number of users experiencing acceptable quality of service (**col 1 lines 50-67, col 9 lines 33-43, describing priority levels and real time admission at different load levels**); and

deciding, on the basis of the RMR, whether to admit a newly arriving call **(col 5 lines 40-57).**

Naghian does not specifically show mapping function, mean and standard deviation values. Olofsson discloses mapping function, mean and standard deviation values (**see figure 4, page 80 column 1, page 81 column 1 and column 2**).

Since both Naghian and Olofsson teach communication system and method of controlling links among mobile users in a network, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Naghian teaching, and have mapping function, mean and standard deviation values, taught by Olofsson, to improve the link level and system level as discuss by Olofsson (**see page 79, the Introduction, Traditional Interfaces, New Interface**).

Naghian, as modified by Olofsson, does not show the use of Kalman method for prediction interference value of each user. Dziong discusses admission control adjustment method and system in a data traffic network, where the Kalman filtering techniques are used and advantageously applied to optimally estimate the SIR mean and variance values (**see the abstract, col 2 lines 50-61, col 7 lines 45-67, col 8 lines 1-5**), thus, Dziong discloses the step of deriving the RMR comprises Kalman prediction of an interference vector comprising a predicted interference value for each user.

Since both Naghian, as modified by Olofsson, and Dziong teach admission control method and system in a traffic data network, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Naghian teachings, as modified by Olofsson and have Kalman prediction of an interference vector comprising a predicted interference value for each user taught by Dziong, to improve the admission control method and system discussed by Naghian (**see col 1 lines 15-67, col 2 lines 1-67, and col 3 lines 1-32).**

Consider claim 10, A base station for use in a time division duplex based wireless communications system, the base station (**col 1 lines 25-45, col 2 lines 27-36, col 3 lines 15-22, col 13 lines 62-67, col 14 lines 1-10**), comprising:

means for deriving, from the received signal to interference ratio (SIR) for all users (**col 1 lines 50-67, col 5 lines 5-17, col 7 lines 35-67, col 8 lines 1-67)** , and from estimates of channel load conditions (**col 5 lines 9-17, col 10 lines 25-41),** and interference levels (**col 1 lines 50-67, col 5 lines 5-17)**, a Resource Metric Region (RMR) showing the number of users experiencing acceptable quality of service (**col 1 lines 50-67, col 9 lines 33-43, describing priority levels and real time admission at different load levels)**; and

means for deciding, on the basis of the RMR, whether to admit a newly arriving call (**col 5 lines 40-57**).

Naghian does not specifically show mapping function, mean and standard deviation values. Olofsson discloses mapping function, mean and standard deviation values (**see figure 4, page 80 column 1, page 81 column 1 and column 2**).

Since both Naghian and Olofsson teach communication system and method of controlling links among mobile users in a network, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Naghian teaching, and have mapping function, mean and standard deviation values, taught by Olofsson, to improve the link level and system level as discuss by Olofsson (**see page 79, the Introduction, Traditional Interfaces, New Interface**).

Naghian, as modified by Olofsson, does not show the use of Kalman method for prediction interference value of each user. Dziong discusses admission control adjustment method and system in a data traffic network, where the Kalman filtering techniques are used and advantageously applied to optimally estimate the SIR mean and variance values (**see the abstract, col 2 lines 50-61, col 7 lines 45-67, col 8 lines 1-5**), thus, Dziong discloses the step of deriving the RMR comprises Kalman prediction of an interference vector comprising a predicted interference value for each user.

Since both Naghian, as modified by Olofsson, and Dziong teach admission control method and system in a traffic data network, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Naghian teachings, as modified by Olofsson and have Kalman prediction of an interference vector comprising a predicted interference value for each user taught by Dziong, to improve the admission control method and system discussed by Naghian (**see col 1 lines 15-67, col 2 lines 1-67, and col 3 lines 1-32**).

Consider claim 3, A method according to claim 2, Naghian, as modified by Olofsson, further teaches wherein the interference vector and the standard deviation thereof are used to predict an available number of users (**col 2 lines 1-15, col 7 lines 34-45, describing load estimation of request bearers based on the SIR level in the control region**).

Consider claim 4, A method according to claim 1, Naghian, as modified by Olofsson, further teaches wherein the RMR shows whether the experiencing acceptable quality of service is above or below a maximum upper limit and also whether said number is above or below a maximum lower unit (**col 4 lines 48-67, col 5 lines 18-45, col 9 lines 45-55**).

Consider claim 5, A method according to claim 4, Naghian, as modified by Olofsson, further teaches comprising establishing a degree of confidence level for users as a function of the distance of the total number of users from said maximum upper limit and of the distance of the total number of users from said maximum lower limit (**col 4 lines 48-67, col 5 lines 18-45, col 9 lines 45-55**), and wherein the step of deciding whether to admit a newly arriving call comprises taking into account said degree of confidence level (**col 2 lines 16-26, 38-42, describing a base station's capacity for admission of new calls based on a threshold SIR level**).

Consider claim 6, (previously presented). A method according to claim 1, Naghian, as modified by Olofsson, teaches wherein the RMMF is established on the basis of the mean and standard deviation of both the bit error rate (BER) and the SIR (**see figure 4, page 81**).

Consider claim 7, (original). A method according to claim 6, Naghian, as modified by Olofsson, teaches wherein SIR values are measured as a sequence of burst values (**see figures 2, 3, pages 80-81**).

Consider claim 8, (original). A method according to claim 7, Naghian, as modified by Olofsson, teaches wherein a BER value is determined for each SIR burst value as a function thereof (**see figures 2, 3, pages 80-81**).

Consider claim 9, (previously presented). A method according to claim 7, Naghian, as modified by Olofsson, teaches wherein link quality is estimated by mapping pairs of parameters, each pair comprising the mean and standard deviation of BER or SIR, onto the average BER (**see figures 2, 3, pages 80-81**).

Consider claim 12, A base station according to claim 11, Naghian, as modified by Olofsson, further teaches wherein the RMR shows whether the experiencing acceptable quality of service is above or below a maximum upper limit and also whether said number is above or below a maximum lower limit (**col 4 lines 48-67, col 5 lines 18-45, col 9 lines 45-55**), and the base station comprises means for establishing a degree of confidence level for users as a function of the distance of the total number of users from said maximum upper limit and of the distance of the total number of users from said maximum lower limit, and wherein the means for deciding whether to admit a newly arriving call comprises means taking into account said degree of confidence level **(col 2 lines 16-26, 38-42, describing a base station's capacity for admission of new calls based on a threshold SIR level**).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUY C. HO whose telephone number is (571)270-1108. The examiner can normally be reached on Monday - Friday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc Nguyen can be reached on 571-272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Duc Nguyen/
Supervisory Patent Examiner, Art Unit 2617